

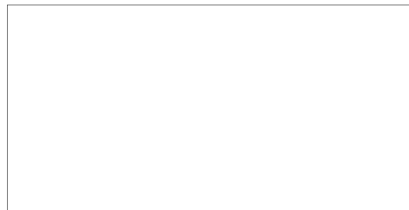
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**PHOTOGRAPHIC
INTERPRETATION
REPORT**

**SHIP WHEEL EMITTER LOCATIONS
USSR**



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INSTALLATION OR ACTIVITY NAME SHIP WHEEL Emitter Locations, USSR					COUNTRY UR	
UTM COORDINATES NA	GEOGRAPHIC COORDINATES See Table 1	CATEGORY NA	BE NUMBER NA	COMIREX NO. NA	NIETS NO. NA	

MAP REFERENCE
USAF Aerospace Planning Chart, Eurasia ASC-1A, scale 1:9,000,000 (UNCLASSIFIED)

	NEGATION DATE (if required) NA
	NPIC PROJECT 250549

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INTRODUCTION

A total of 142 SHIP WHEEL emitters, including 14 probable and eight possible, have been identified at 75 locations in the USSR (Figure 1 and Table 1). A total of 208 locations were searched for SHIP WHEEL emitters. Ninety of these locations contained no emitters (Table 2). No identification or verification could be made at the other 43 locations because of poor interpretability of available photography.

The SHIP WHEEL emitter is used for the acquisition and tracking of Soviet earth-satellite vehicles and test-fired ballistic missiles. It is found mainly at missile test centers, and also at downrange tracking facilities, ESV tracking facilities, and missile impact areas. This emitter can unlock and track the S339Z (AD06) beacon which is aboard most Soviet missiles and satellite vehicles.¹

BASIC DESCRIPTION

The [] SHIP WHEEL radar dish is mounted in three different land-based configurations; a van-mounted type, a building-mounted type, and a pedestal-mounted type.

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A typical T-shaped configuration is formed by two vans which are associated with the SHIP WHEEL radar (Figure 2). The SHIP WHEEL emitter is mounted at one end of the larger van []. This van has a canopied doorway on one side which serves as the passageway into the support van. The support van []) and has a door at one end. Occasionally these vans are observed side by side in a parallel configuration (Figure 3).

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Building-Mounted SHIP WHEEL

The SHIP WHEEL radars at Soviet ESV tracking facilities are roof-mounted on buildings (Figure 4) []. The location of the radar dish on these buildings is generally centered at one end of the roof. At missile tracking facilities, the typical SHIP WHEEL building (Figure 5) measures approximately 52.0 by 16.0 meters (170.6 by 52.6 feet). These radars are also observed on other types of buildings which serve more than a SHIP WHEEL support function. Some of these multipurpose buildings include site control buildings and buildings which have a varied number of roof-mounted antennas.

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Pedestal-Mounted SHIP WHEEL

An unusual SHIP WHEEL radar assembly at Sary Shagan Missile Test Center Launch Complex B, Launch Facility B (Figure 1 and Table 1, item 8a) shows two pedestals--each of which supports two ship wheel radar dishes--located on two sides of a launch control bunker, with a third smaller dish mounted on each pedestal and slaved to the other dishes (Figure 6). This radar configuration was identified in the Soviet television film "Rockets Guard the Peace," in conjunction with the firing of a research and development defensive missile from launch position B-2.

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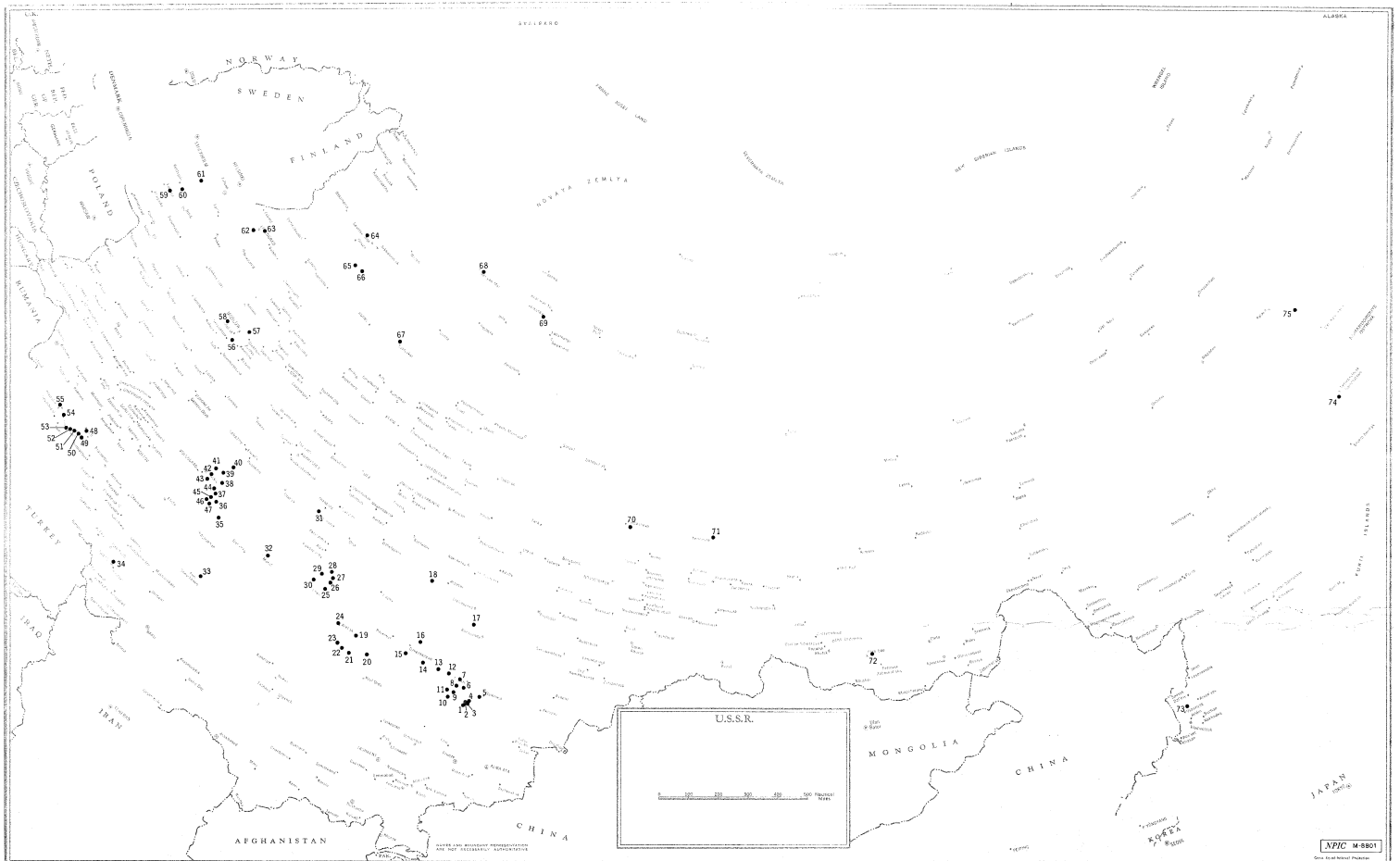


FIGURE 1. SHIP WHEEL RADAR EMITTER LOCATIONS, USSR

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Table 3. Locations with an Undetermined Number of SHIP WHEEL Emitters

Tyuratam Missile Test Range Area	
TT, C03B, T15, Tartagay	044-29N 066-18E
TT, C03D, Taguz	047-21N 060-23E
TT, C10B, T08, Ladyzhenka	050-58N 066-11E
Emba Missile Test Center	
B03C, V04, Cheikar	047-45N 059-26E
Kapustin Yar Missile Test Range Area	
Z, Kordon 160/9	047-27N 046-03E
KY, Akhmedskhola	046-32N 051-04E
KY, Novaya Kazanka	048-30N 049-50E
KY, K02, A32D, Unda	048-40N 047-20E
Auz-Kukuk	046-40N 049-48E
KY, A02J, A34B, K09, Kulagino	048-40N 051-02E
3 Rad C, (Near Site 11)	048-12N 045-22E
Moscow Area	
Z, Moscow 160/9	055-35N 038-26E
Pokrovskaya Moscow Space Trac Fac	055-37N 037-48E
Mitschi, RAD Electronics Plant	055-35N 037-44E
Z, Moscow 160/9	056-01N 038-51E
Kirzhach 1/9	056-03N 038-50E
Vladimir, Precision Radar Track F	056-15N 039-14E
Western Russia	
BTCC, VII, Tashkent	041-20N 069-18E
B10C, B28C, V09, Buryshnik	045-24N 051-14E
A61A, K11, Makat	047-40N 053-14E
Z, Khukov 240/8	049-59N 056-06E
Zimnki, Radio Astron Ods	055-58N 045-20E
Z, Polovnich 50/3	063-82N 050-58E
NFMR, Koslan, P08, ESL	063-48N 048-52E
Z, Zhiaglin Ostrov	065-10N 058-53E
Z, Gridino	066-04N 054-39E
Z, Chizha 240/5	067-03N 044-02E
NFMC, Chizha Oststation	067-26N 044-01E
NFMR, Gorodetski	067-41N 040-53E
NFMR, Khimov-Ya, 50-ft Dome	068-00N 064-43E
Z, Verkhia 0/4	068-01N 064-46N
NFMR, Belashya Guba, P07, 160/3	070-40N 052-20E
NFMR, Maresale 50-ft Dome	070 N 068 E
Z, Belashya Guba, 80/3	071-41N 059-21E
NFMC, Lake Kokora	
NFMR, Verkhniy Shar, 50-ft Dome	
NFMR, Krasino	
Eastern Russia	
Kashkoloi, 80-ft Dome	042-51N 105-10E
Z, Mys Tysk 160/9	053-37N 142-07E
Z, 160/9	051-37N 142-07E
Z, 0/8	051-38N 142-07E
CS1E, T32, Site G	054-26N 162-46E
Site E	057-16N 162-46E

Table 2. Locations without SHIP WHEEL Emitters

Sary-Shagan Antimissile Test Center		Plesetsk Launch Site 21	062-55N 041-22E
SS Track Fac 3 HEN EGG	045-37N 072-06E	Plesetsk A	062-59N 040-47E
SS Track Fac 5	045-34N 071-50E	Plesetsk Launch Site 23	063-00N 041-53E
*SS, Prototype HEN HOUSE	046-00N 075-30E	Plesetsk Launch Site 24	063-00N 041-51E
SS Track Fac 6, HEN EGG	046-14N 070-53E	Plesetsk C	063-01N 040-53E
SS Track Fac 7	046-37N 070-46E	Plesetsk B	063-03N 040-57E
SS Track Fac 10	046-57N 072-32E	Black Sea Area	
Tyuratam Missile Test Range Area		Yalta Radioastronom Fac Simalz (Crimean, Astrophysic OBS Simalz)	044-25N 034-01E
TT, Launch Site D Int Facility	046-01N 064-00E	Z, Yalta	044-29N 034-07E
SP-2	047-11N 065-18E	Z, Suda	044-41N 034-03E
C 10D, T09, Dzhezkagan	047-50N 057-41E	Novorossiysk, 90-ft Dome	044-45N 037-48E
TT, C03E Ingiz	048-30N 061-11E	B 10B, V12, Kirovskoye	045-10N 035-11E
TT, C03B, T10, Berlik Area	048-41N 066-03E	Kerch/Bagerovo Airfield	045-24N 038-15E
TT, C03B, T04, Amangoldy	050-14N 065-10E	Moscow Area	
Emba Missile Test Center		Z, Moscow 0/4	055-06N 036-44E
Emba, Site B	048-19N 053-10E	S02D, V06, Moscow Ramenskoye	055-04N 035-14E
Emba, Trac Fac 3/now Fac 3	048-26-5N 058-06E	Z, Moscow 160/9	055-35N 037-54E
Emba, Trac Fac 10/now Fac 2	048-30-7N 057-55E	Z, Moscow 160/9	055-36N 038-46E
Emba, Trac Fac 11	048-31N 058-01E	Z, Moscow 160/9	055-38N 038-16E
Emba, Trac Fac 3	048-31N 058-02E	Zvenigorod, Optical ESV Track Fac	055-27N 028-44E
Emba, Trac Fac 4	048-31N 058-03E	Moscow, Suprino I/F	055-52N 037-57E
Emba, EW Radar Site/now Elec Fac B	048-32N 055-03E	Khimki, RAD Electronics Plant	055-04-6N 037-25-29E
Emba, Trac Fac 1/now Elec Fac A	048-32N 055-07E	N445 Plant, Moscow	055-55N 037-45E
Kapustin Yar Missile Test Range Area		Z, Moscow 160/9	055-55N 038-07E
Gomyz, Balykley, H-Electronics	049-31N 043-02E	Western Russia	
KY, B12B, B22B, B24B, B27B, V02, Torsky	049-11E 048-10E	B10A, B28A, B17B, Gurev	047-14N 051-59E
V01, Vladimirovka Range Head	048-18N 046-10E	Z, Makat 160/9	047-57N 052-01E
KY, Complex C	048-30N 046-07E	Novosibirsk Curtain Array	054-55N 082-52B
KY, A36B, A43B, A63B, K10, AO3P, KOT	048-38N 050-22E	Leningrad, 59 AMM BEEK CAN	058-43N 029-18E
3 Rad C	049-08N 046-13E	Leningrad, NW AMM/SAM	060-27N 028-44E
KY, Kanyshin, H-type 50-Ft Dome	050-02N 045-14E	Unknown	062-20N 050-51E
Plesetsk Missile and Space Center		NFMC, Lyulenga Oststation	045-04N 051-13E
Plesetsk E	062-51N 040-35E	NFMR, Abet Radome 50-ft diam.	065-12N 041-51E
Plesetsk F	062-52N 040-41E	NFMR, Malaya Nes, 50-ft dome	066-42N 041-55E
Plesetsk G	062-53N 040-51E	NFMR, Kola Peninsula, DF, ESL	066-26N 044-42E
Plesetsk H	062-53N 040-52E	NFMR, Ponoy, 50-ft Dome	067-00N 040-00E
Plesetsk Launch Site 22	062-53N 041-42E	NFMR, 041-07E	067-06N 041-07E
Plesetsk I	062-54N 040-47E	Z, Naryao-Mar	067-36N 043-14E
Plesetsk Launch Site 20	062-55N 041-19E	NFMR, Shoyva	067-41N 041-09E
Plesetsk 1	062-56N 040-47E	Olenegorsk, Henhouse	068-06N 033-53E
Plesetsk 2	062-56N 040-52E	NFMC, Khopovarka, 50-ft Dome	068-56N 033-44E
Plesetsk Launch Site 17	062-56N 041-54E	Z, Mermansk 240/9	068-19N 031-14E
Plesetsk Launch Site 19	062-57N 041-50E	Eastern Russia	
Plesetsk Launch Site 11	062-58N 040-41E	*Mishalevka (Angarsk)	052-53N 103-15E
Plesetsk Launch Site 12	062-58N 041-32E	T30, Kiyuchi, Site 4	056-16-0N 160-47-1E
Plesetsk Launch Site 13	062-58N 041-33E	CS1G, Yelovka, Site B	056-52N 161-19E
Plesetsk Launch Site 14	062-58N 041-24E	CS1G, T33, Site C	057-09N 161-20E
Plesetsk Launch Site 15	062-58N 041-39E	Ozernoy, Site D	057-09N 162-46E
Plesetsk Launch Site 16	062-58N 041-39E	CS1P, CS0B, Site F	057-33N 162-00E
		CS1B, T31, Uka, Site A	057-55N 162-02E

*Shipwheel Radars observed on earlier photography but not observed on more recent photography.

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REFERENCES

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MAPS OR CHARTS

USAF Aerospace Planning Chart, Eurasia ASC-1A, scale 1:9,000,000 (UNCLASSIFIED)

DOCUMENT

1. EDL. [REDACTED] *Project BAND STAND Report No. 25 (U)*, Jul 68 (TOP SECRET CHESS RUFF [REDACTED])

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RELATED DOCUMENT

CIA. TCS-83701/68. *Range Optical Tracking and Instrumentation Stations, USSR and China--Radar A and Related Facilities*, Jun 68 (TOP SECRET CHESS RUFF CODEWORD [REDACTED])

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